DOCUMENT RESUME

ED 466 391 SE 066 429


| | |
|---|---|
| AUTHOR | Jacobson, Michael J., Ed.; Kozma, Robert B., Ed. |
| TITLE | Innovations in Science and Mathematics Education: Advanced Designs for Technologies of Learning. |
| ISBN | ISBN-0-8058-2846-X |
| PUB DATE | 2000-00-00 |
| NOTE | 430p. |
| AVAILABLE FROM | Lawrence Erlbaum Associates, Inc., 10 Industrial Avenue, Mahwah, NJ 07430 ($99.95). Tel: 800-926-6579 (Toll Free). |
| PUB TYPE | Books (010) -- Collected Works - General (020) |
| EDRS PRICE | Document Not Available from EDRS. |
| DESCRIPTORS | Computer Uses in Education; Elementary Secondary Education; Instructional Innovation; *Mathematics Education; *Science Education |



ABSTRACT

This collection of essays consists of current work that addresses the challenge not just to put the newest technologies in schools, but to identify advanced ways to design and use these new technologies to advance learning. These essays are intended for science and mathematics educators, educational and cognitive researchers, instructional technologists and educational software developers, educational policymakers, and scholars and students in these fields. Chapters include: (1) "Introduction: New Perspectives on Designing the Technologies of Learning" (Michael J. Jacobson, Alex J. Angulo, and Robert B. Kozma); (2) "The Use of Multiple Representations and the Social Construction of Understanding in Chemistry" (Robert B. Kozma); (3) "SIMCALC: Accelerating Students' Engagement with the Mathematics of Change" (Jeremy Roschelle, James J. Kaput, and Walter Stroup); (4) "Model-It: A Design Retrospective" (Shari Jackson Metcalf, Joseph Krajcik, and Elliot Soloway); (5) "The Knowledge Mediator Framework: Toward the Design of Hypermedia Tools for Learning" (Michael J. Jacobson and Anthi Archodidou); (6) "Computer-Based Manipulatives for Teaching Scientific Reasoning: An Example" (Paul Horwitz and Mary Ann Christie); (7) "The Knowledge Integration Environment: Helping Students Use the Internet Effectively" (James D. Slotta and Marcia C. Linn); (8) "Computer-Supported Collaborative Learning in Engineering: The Challenge of Scaling-Up Assessment" (Mark Guzdial and Jennifer Turns); (9) "Astronomical Experiences Using Internet-Accessible Remote Instrumentation" (Philip M. Sadler, Roy Gould, Kenneth Brecher, and Beth Hoffman); (10) "Technology Supports for Student Participation in Science Investigations" (Barbara Means and Elaine Coleman); (11) "Technological Tools and Instructional Approaches for Making Scientific Inquiry Accessible to All" (Barbara Y. White and John R. Frederiksen); and (12) "The Design of Immersive Virtual Learning Environments: Fostering Deep Understandings of Complex Scientific Knowledge" (Chris Dede, Marilyn Salzman, R. Bowen Loftin, and Katy Ash). (MM)



Reproductions supplied by EDRS are the best that can be made
from the original document.